CALIFORNIA DEPARTMENT OF EDUCATION
Child, Youth and Family Services Branch

NUTRITION SERVICES DIVISION
MANAGEMENT BULLETIN No.: 00-406

TO:	All Food Distribution Agencies	ISSUE DATE: June 2000
FROM:	Commodity Distribution Unit, Food Distribution Program	
ATTENTION:	Food Service Directors	
SUBJECT:	Foodborne Illness and Safe Food Handling	

The Centers for Disease Control (CDC) are currently targeting four bacterial pathogens: Salmonella, Listeria monocytogenes, Campylobacter jejuni, and E. coli O157:H7. This management bulletin transmits information on foodborne illnesses and guidelines for safe food handling.

In general, most foods contaminated with foodborne pathogens are of animal origin such as beef, poultry, milk, or eggs, but all foods, including fruits and vegetables, may become contaminated. Recently, E. coli O157:H7 has been associated with raw sprouts. (Please refer to the attached news release.) Additionally, food may become contaminated by the unwashed hands of an infected food handler whose hands were not washed with soap after using the bathroom or handling raw food products.

Foodborne illnesses may be prevented by following safe food handling procedures, such as:

- Keeping foods out of the danger zone of 41°F to 140°F (CURFFL guidelines).
- Washing hands frequently with soap and warm water.
- Thawing foods in the refrigerator or under cold running water.
- Avoiding cross-contamination by keeping raw and cooked foods separate.
- Cooking foods to the **minimum** temperatures: 165°F for poultry, mixed dishes, and previously cooked foods, 155°F for pork, 160°F for ground beef, 145°F for fish and eggs, and 140°F for precooked items (CURFFL guidelines).
- Serving food at the correct temperature: below 40°F for cold foods and above 140°F for hot foods.

SALMONELLA

Salmonella live in the intestinal tracts of humans and other animals, including birds. Salmonella is usually transmitted to humans by eating foods contaminated with animal feces. Foods that look and smell normal may often be contaminated. Common food sources of salmonella are raw and undercooked eggs, undercooked poultry and meat, dairy products, seafood, and fruits and vegetables.

Salmonella bacteria thrive at temperatures between 40° and 140°F. They are destroyed by pasteurization and do not grow at refrigerator or freezer temperatures. However, they do survive refrigeration and freezing and will begin to grow again once warmed to room temperatures.

Symptoms of salmonellosis include headache, diarrhea, fever, chills, nausea, abdominal discomfort, and occasional vomiting. The symptoms usually occur one to three days after exposure, and last five to seven days. Children are most likely to get salmonellosis. Young children, the elderly, and the immunocompromised are the most likely to have severe infections. Most people recover on their own without medication. Antibiotics and antidiarrheal drugs are not generally recommended.

LISTERIA MONOCYTOGENES

Listeria monocytogenes is a type of bacteria often found in soil and water, and carried in the intestines of many animals and humans. It has been found in a variety of raw foods, such as uncooked meats, vegetables, and raw and smoked fish. It has been found in processed foods that become contaminated after processing, such as soft cheeses and cold cuts. Unpasteurized (raw) milk or foods made from unpasteurized milk may contain Listeria monocytogenes as well.

Listeria monocytogenes can grow at temperatures as low as 37°F and thrive at temperatures between 40° and 140°F. The bacteria are destroyed by pasteurization. They can survive refrigeration and freezing, and will begin to multiply once warmed to room temperature.

The listeriosis affects primarily pregnant women, newborns, adults with weakened immune systems, and the elderly. Onset time varies from a few days to three weeks. Symptoms include fever, muscle aches, and sometimes nausea and diarrhea. If the infection spreads to the nervous system, symptoms could include headache, stiff neck, confusion, loss of balance, or convulsions. Infected pregnant women may experience only mild symptoms; however, the infection can lead to premature delivery, infection to the baby, or even stillbirth. Listeriosis is successfully treated with antibiotics.

CAMPYLOBACTER JEJUNI

Campylobacter jejuni is usually associated with handling raw poultry or eating raw or undercooked poultry meat. Other outbreaks associated with Campylobacteriosis are related to drinking unpasteurized milk or contaminated water. Animals can also be infected, and some people have acquired their infection from contact with an infected animal.

Campylobacter is relatively fragile and does not grow at temperatures below 40°F or above 140°F. Freezing reduces the number of Campylobacter bacteria present on raw meat, and they are destroyed by pasteurization.

According to the CDC, Campylobacter is the leading cause of bacterial diarrhea in the United States . It is more prevalent in the summer months than in the winter. Anyone can become ill from Campylobacter infection, but populations with immature or weakened immune systems are more likely to have severe infections and complications. Most people who become ill with Campylobacteriosis experience diarrhea, cramping, abdominal pain, and fever within two to five days after exposure. Occasionally, people experience bloody diarrhea, nausea, and vomiting. The illness usually lasts one week, but can last up to ten days. Most people recover on their own without medication. Antibiotics may be used if symptoms are severe.

ESCHERICHIA COLI O157:H7

E. coli O157:H7 is one of hundreds of strains of the bacterium Escherichia coli. Although most strains are harmless and live in the intestines of healthy humans and animals, this strain produces a powerful toxin and causes severe illness. This organism can live in the intestines of healthy cattle, but the meat

may become contaminated during slaughter. The bacteria may be present on cows' udders or milking equipment, and may get into raw milk as well.

Symptoms of E. Coli O157:H7 infection may appear within hours or may appear after several days. The infection often causes severe cramping (abdominal pain) and watery diarrhea, which may become bloody. Occasionally a person may experience vomiting and a low-grade fever. The illness usually lasts five to ten days. Most persons recover without antibiotics or other specific treatment. Antidiarrheal medications should be avoided. However, in some persons, particularly children under 5 years, the elderly, and those with weakened immune systems, the infection may cause complications such as hemolytic uremic syndrome (HUS). HUS occurs when red blood cells are destroyed and the kidneys fail. This illness may lead to death.

Illness from E. coli O157:H7 can be prevented by:

- Cooking all ground beef or hamburger thoroughly, to a minimum internal temperature of 160°F.
- Drinking pasteurized milk, milk products, ciders, and juices.
- Washing fruits and vegetables thoroughly before use.
- Washing hands, utensils, and work areas with hot soapy water after contact with raw meat to keep bacteria from spreading and prevent cross-contamination.

FURTHER INFORMATION

The following websites were consulted to obtain this information:

- California Department of Health Services at www.dhs.cahwnet.gov
- Centers for Disease Control at www.cdc.gov
- National Food Safety Database at www.foodsafety.org
- Partnership for Food Safety Education at www.fightbac.org
- Gateway to Government Food Safety Information at www. foodsafety.gov
- The Bad Bug Book at vm.cfsan.fda.gov

If you have any questions regarding this management bulletin, please contact: Amy Bell, R.D., Child Nutrition Consultant, at (916) 322-5051 or abell@cde.ca.gov; or Cindy Schneider, R.D., Child Nutrition Consultant, at (916) 322-1566 or cschneid@cde.ca.gov. To leave a message, you may also call (800) 952-5609.

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